compressed audio data to a processor of the computer system for decompressing the audio data, thereby providing decompressed audio data; and storing the decompressed data in a memory of the computer system.

[0014] The computer system may have a processor which is capable of operation in a first power state and a second power state, wherein the processor consumes less power in the first power state than the second power state, and wherein a method consistent with the invention further includes placing the processor in the first power state from the second power state when the processor is not decompressing the compressed audio data.

[0015] A personal computer (PC) adapted to function as a decompressed audio player consistent with the invention includes: a central processing unit (CPU) responsive to a control signal to load a first operating system or a second operating system, wherein the first operating system is run by the PC in a first PC mode and the second operating system is run by the PC in a second compressed audio mode.

[0016] Another method of operating a personal computer (PC) in either a first personal computer (PC) mode or a second compressed audio performance mode consistent with the invention includes the steps of: initiating a control signal; and loading a first or second operating system based on the control signal, wherein the first operating system operates the PC is the first PC mode and the second operating system operates the PC in the second compressed audio performance mode.

BRIEF DESCRIPTION OF THE DRAWINGS

[0017] FIG. 1 is a block diagram representation an exemplary operational flow of one embodiment of the present invention;

[0018] FIG. 2 is a flow diagram of an exemplary power up of the mini-OS and initiation of the player function, in one embodiment of the present invention;

[0019] FIG. 3 is a block diagram of an exemplary audio player system consistent with one embodiment of the present invention;

[0020] FIG. 4 is a block diagram of the internal portion of an exemplary special purpose circuit, in relation to the other components that interface with it, in one embodiment of the present invention;

[0021] FIG. 5 is another block diagram of an exemplary audio player system consistent with another embodiment of the present invention; and

[0022] FIG. 6 is another block diagram of an exemplary audio player system consistent with another embodiment of the invention which utilizes software only for audio decoding and playing.

DETAILED DESCRIPTION OF EXEMPLARY EMBODIMENTS

[0023] In one embodiment, a computer system consistent with the invention includes a mini-OS (operating system) software and a hardware interface (special purpose circuit) between the South Bridge and Codec to play the musical selections (or other stored audio) desired by the user. In

another embodiment, no hardware is needed as the computer system employs a software only solution.

[0024] The mini-OS software of the present invention performs only those functions and enables those elements of the portable computer that are needed, when they are needed, to play the selected music, without performing all of the background functions performed by the full system operating system, e.g., Windows®, and without accessing the monitor circuitry and monitor screen of the portable computer. Additionally, the mini-OS of the present invention only accesses the HDD when compressed files are being transferred to RAM. Thus, it will be seen that the mini-OS software portion of the present invention performs both power saving and file management functions when playing audio.

[0025] FIG. 1 is a block diagram representation of the operational flow of the exemplary software compressed audio player in one embodiment of the present invention.

[0026] The operational concept illustrated in FIG. 1 is as follows:

[0027] 1st: A browser, running on a full system operating system, e.g., Windows®, of the portable computer is initially used to download compressed music files (for example 1000 songs) onto the PC hard disk drive (HDD) (2) (e.g., using 4 gigabytes of HDD space) at some time prior to the time at which the user desires to use the portable computer as an audio player and a playlist is created, comprising the songs the user desires to hear at a later time;

[0028] 2nd: When the user desires to use the portable computer as an audio player, once the desired music files are on the HDD, the user operates an audio player on-switch to turn the portable computer fully on, boot up the entire computer, load in the mini-OS of the present invention instead of the usual Microsoft Windows® OS (the full system operating system is not opened) with the power saving initialization subroutines and initializes only those portions of the portable computer as necessary, and the file management subroutines initialize the song play list or book generated in step 1, of a substantial number of songs, for desired music listening under direction of the user;

[0029] 3rd: The mini-OS software is then copied from the HDD (2) to RAM (4), and then the first set of compressed files from the song play list is copied from the HDD (2) to the system RAM (4) also using the mini-OS software of the present invention. For example, in today's PC's 128 Mbytes is a typical system RAM size, with the mini-OS software of the present invention taking about 8 Mbytes of the RAM, leaving approximately 120 Mbytes for use as a compressed music memory (i.e., a cache or buffer, using system memory, dedicated memory, or other memory). That 120 Mbytes represents about 2 hours of continuous compressed music with a compression ration of 10:1, typical of MP3 files. Similarly, in the case when flash media is used for MP3 storage, all or most of the contents of the flash media card can be copied to the system RAM (4), thus minimizing the access of the flash media reader and allowing for a more responsive control over the MP3 files;